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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/795,932	03/08/2004	So-Hyun Kim	678-1354	1349

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EXAMINER

RAMAKRISHNAIAH, MELUR

ART UNIT	PAPER NUMBER
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2614

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/795,932

Applicant(s)

KIM ET AL.

Examiner

Melur Ramakrishnaiah

Art Unit

2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7-11-04/8-15-05</u> | 6) <input type="checkbox"/> Other: _____ |

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-34 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-28 of copending Application No. 10/794,989. Although the conflicting claims are not identical, they are not patentably distinct from each other because for example claim 1 of the present application is an obvious variation of claim 1 of the copending Application No. 10/794,989.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2614

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4, 6, ~~9-11~~, 12-15, ~~17-20, 23-25, 26-29, 32-34~~ are rejected under 35

U.S.C. 103(a) as being unpatentable over Kitroser et al. ("IEEE 802.16e Mobility Enhancements", dated 1-14-2003, hereinafter Kitroser) in view of Salonhao (WO 99/43178, 8-26-1999).

Regarding claim 1, Kitroser discloses a subscriber station (SS) handover method upon receiving a handover request from the SS in BWA (Broadband Wireless Access) communication system comprised of serving BS (Base Station) and a plurality of neighbor BSs adjacent to serving BS, comprising the steps of: receiving from the serving BS information relating to the plurality of neighbor BSs, measuring signal quality of pilot signals (reads on estimating signal quality by SS: See A SS will listen to neighbor BS in 2.4.1) transferred from the neighbor BSs upon receipt of information relating to neighbor BSs, transmitting a handover request signal to the serving BSs along with signal quality information of the neighbor BSs, receiving from the serving BS information of a target BS from among the neighbor BSs, and performing a handover from the serving BS to the target BS (whole section 2.4 and fig. 3).

Kitroser differs from claimed invention in that he does not specifically teach: measuring CINRs of pilot signals and reporting it serving BS in connection with handover.

Salonhao discloses measurement reporting in a telecommunication system which teaches: measuring CINRs of pilot signals and reporting it serving BS in

connection with handover (figs. 1-10; page 6, line 4 – page 9, line 22; page 12, line 35 – page 19, line 20).

Thus, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Kitroser's system to provide for: measuring CINRs of pilot signals and reporting it serving BS in connection with handover as this arrangement would facilitate to provide robust and efficient procedure for effecting handover to the desired target BS as taught by Salonhao.

Kitroser differs from claims 2-4 in that he specifically teach: information of the neighbor BSs information indicative of the number of neighbor BSs, BS ID information for identifying neighbor BSs, and individual carrier frequency information of the neighbor BSs, detecting from among pilot signals CINRs of neighbor BSs pilot signal CINRs of neighbor BSs having a predetermined pilot signal CINR, detecting pilot signal CINRs greater than those of serving BS during more than a predetermined minimum time from among BSs' pilot CINRs greater than minimum pilot signal CINR, and transmitting a handover request signal to the serving BS along with the pilot signal CINR grater than that of the serving BS during more than the predetermined minimum time, controlling the SS not to perform a pilot signal CINR measurement operation in association with a neighbor BS for transmitting a pilot signal less than minimum pilot signal CINR.

However, Salonhao teaches the following: information of the neighbor BSs information indicative of the number of neighbor BSs, BS ID information for identifying neighbor BSs, and individual carrier frequency information of the neighbor BSs (note table on page 17), detecting from among pilot signals CINRs of neighbor BSs pilot

signal CINRs of neighbor BSs having a predetermined pilot signal CINR, detecting pilot signal CINRs greater than those of serving BS during more than a predetermined minimum time from among BSs' pilot CINRs greater than minimum pilot signal CINR (fig. 2), and transmitting a handover request signal to the serving BS along with the pilot signal CINR greater than that of the serving BS during more than the predetermined minimum time, controlling the SS not to perform a pilot signal CINR measurement operation in association with a neighbor BS for transmitting a pilot signal less than minimum pilot signal CINR (figs. 1-10; page 6, line 4 – page 9, line 22; page 12, line 35 – page 19, line 20).

Thus, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Kitroser's system to provide for: information of the neighbor BSs information indicative of the number of neighbor BSs, BS ID information for identifying neighbor BSs, and individual carrier frequency information of the neighbor BSs; detecting from among pilot signals CINRs of neighbor BSs pilot signal CINRs of neighbor BSs having a predetermined pilot signal CINR, detecting pilot signal CINRs greater than those of serving BS during more than a predetermined minimum time from among BSs' pilot CINRs greater than minimum pilot signal CINR, and transmitting a handover request signal to the serving BS along with the pilot signal CINR greater than that of the serving BS during more than the predetermined minimum time, controlling the SS not to perform a pilot signal CINR measurement operation in association with a neighbor BS for transmitting a pilot signal less than minimum pilot signal CINR as this

arrangement would facilitate to provide robust and efficient procedure for effecting handover to the desired target BS as taught by Salonhao.

5. Claims 5, 8, 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitroser in view of Salonhao as applied to claim 1 above, and further in view of Vialen et al. (US PAT: 6,577,868, filed 8-15-2000, hereinafter Vialen).

The combination differs from claims 5, 8 in that it does not explicitly teach: handover request signal includes QOS (Quality of Service) information of a service desired by the SS and required bandwidth information associated with the service, determining whether each of the neighbor BSs are able to support the QOS and required bandwidth information.

However, Vialen discloses method and system for performing handover in a mobile communication system which teaches the following: : handover request signal includes QOS (Quality of Service) information of a service desired by the SS and required bandwidth information associated with the service (fig. 6, col. 5, line 60 – col. 6, line 27), determining whether each of the neighbor BSs are able to support the QOS and required bandwidth information (col. 6 lines 41-55).

Thus, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify the combination to provide for: handover request signal includes QOS (Quality of Service) information of a service desired by the SS and required bandwidth information associated with the service, determining whether each of the neighbor BSs are able to support the QOS and required bandwidth information as

this arrangement would facilitate to ensure quality of service desired by the mobile terminal after handoff as taught by Vialen.

Claim 6 is rejected on the same basis as claim 1.

Claim 7 is rejected on the same basis as claim 5.

The combination of Kitroser and Salonhao differs from claims 9-10 in that he does not explicitly teach: information about the neighbor BSs includes information indicative of number of neighbor BSs, BS ID information of the neighbor BSs, and carrier frequency information of the neighbor BS, informing the target BS of a handover ready state of the SS using a BS ID of the target BS and a CID (connection ID) assigned from the serving BS to the SS.

However, Vialen teaches the following: information about the neighbor BSs includes information indicative of number of neighbor BSs, BS ID information of the neighbor BSs, and carrier frequency information of the neighbor BS, informing the target BS of a handover ready state of the SS using a BS ID of the target BS and a CID (connection ID) assigned from the serving BS to the SS (col. 5 lines 11-55).

Thus, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify the combination to provide for: information about the neighbor BSs includes information indicative of number of neighbor BSs, BS ID information of the neighbor BSs, and carrier frequency information of the neighbor BS, informing the target BS of a handover ready state of the SS using a BS ID of the target BS and a CID (connection ID) assigned from the serving BS to the SS as this

Art Unit: 2614

arrangement would provide necessary information for effecting handover in mobile communication system as taught by Vialen.

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitroser in view of Salonhao as applied to claim 6 above, and further in view of Dolan et al. (US PAT: 6,990,344, filed 8-30-2000, hereinafter Dolan).

The combination differs from claim 11 in that it does not teach the following: if it is not possible for any of the neighbor BSs contained in the handover request signal support the handover function, informing the SS of handover unable state.

However, Dolan discloses method and arrangement in a radio communication system which teaches the following: neighboring cell is found to be incapable of acting as a target for handoff of a mobile station by comparing the characteristic of the cell or whether the cell supports the service requested with required characteristics of potential handoff target cells derived from a subscriber profile associated with the mobile station or a requested communication service (col. 6, line 56 – col. 7, line 4) which implies informing the SS of handover unable state.

Thus, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify the combination to provide for: if it is not possible for any of the neighbor BSs contained in the handover request signal support the handover function, informing the SS of handover unable state as this arrangement would prevent handover to a target BS which cannot support requested service of the mobile station.

Claim 12 is rejected on the same basis as claim 1.

Claims 13-15 are rejected on the same basis as claims 2-4.

Claim 16 is rejected on the same basis as claim 5.

7. Claims 17-20, 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitroser in view of Salonhao and Dolan.

Regarding claim 17, Kitroser discloses a handover method upon receiving a handover request from an SS (Subscriber Station) in BWA (Broadband Wireless Access) communication system comprises of a serving BS (Base Station) and a plurality of neighboring BSs adjacent to the serving BS, comprising the steps of: controlling the serving BS to transmit to the SS information of the neighbor BSs and handover condition information, controlling the SS to measure signal quality of pilot signals transferred from the neighbor BSs according to neighbor BSs information, controlling the SS to determine plurality of candidate BSs corresponding to handover condition information among the neighbor BSs, and transmitting to the serving BS a handover request along with pilot signal quality information of the candidate BSs, controlling the serving BS to transmit a response signal associated with handover request signal to SS along with the target BS information and informing the target BS of handover ready state of the SS, and controlling SS to perform a handover operation from the serving bS to the target BS according to target BS information contained in the handover request response signal (whole section 2.4 and fig. 3).

Kitroser differs from the claimed invention in that he does not specifically teach: measuring CINRs of pilot signals and reporting it to serving BS in connection with handover; determining if the neighbor BSs contained in the handover request signal can support handover function for the SS, selecting the target BS acting as handover target

of the SS from among the candidate BSs capable of supporting handover function for the SS.

Salonhao discloses measurement reporting in a telecommunication system which teaches: measuring CINRs of pilot signals and reporting it serving BS in connection with handover (figs. 1-10; page 6, line 4 – page 9, line 22; page 12, line 35 – page 19, line 20); Dolan discloses method and arrangement in a radio communication system which teaches the following: neighboring cell is found to be incapable of acting as a target for handoff of a mobile station by comparing the characteristic of the cell or whether the cell supports the service requested with required characteristics of potential handoff target cells derived from a subscriber profile associated with the mobile station or a requested communication service (col. 6, line 56 – col. 7, line 4) which implicitly teaches selecting the target BS acting as handover target of the SS from among the candidate BSs capable of supporting handover function for the SS.

Thus, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Kitroser's system to provide for: measuring CINRs of pilot signals and reporting it serving BS in connection with handover as this arrangement would facilitate to provide robust and efficient procedure for effecting handover to the desired target BS as taught by Salonhao; determining if the neighbor BSs contained in the handover request signal can support handover function for the SS, selecting the target BS acting as handover target of the SS from among the candidate BSs capable

of supporting handover function for the SS as this arrangement would prevent handover to a target BS which cannot support requested service of the mobile station.

Claims 18-20 are rejected on the same basis as claims 2-4.

Claims 21-22 are rejected on the same basis as claims 7-8.

Claim 23 is rejected on the same basis as claim 10.

Claim 24 is rejected on the same basis as claim 11.

Regarding claim 25, Kitroser teaches the following: of the serving BS transmits to the SS a response signal associated with handover signal, controlling the serving BS to release a link connected to the SS (fig. 2).

Claim 26 is rejected on the same basis as claim 17.

Claims 27-29 are rejected on the same basis as claims 2-4.

Claims 30-31 are rejected on the same basis as claims 7-8.

Claim 32 is rejected on the same basis as claim 10.

Claim 33 is rejected on the same basis as claim 11.

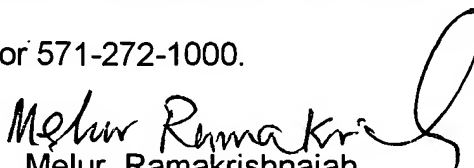
Claim 34 is rejected on the same basis as claim 34.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melur Ramakrishnaiah whose telephone number is (571)272-8098. The examiner can normally be reached on 9 Hr schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curt Kuntz can be reached on (571) 272-7499. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2614

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Melur Ramakrishnaiah
Primary Examiner
Art Unit 2614